ELEVATED 20-HETE CONTRIBUTES TO THE IMPROVED ENDOTHELIAL FUNCTION IN LIPOCALIN-2 DEFICIENT MICE

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Lipocalin-2 is a glycoprotein constitutively secreted from adipocytes. In obese human subjects, the circulating lipocalin-2 level is elevated and positively correlated with systolic arterial blood pressure, dyslipidemia and insulin resistance. In mice, deficiency of lipocalin-2 protects against aging- and obesity-induced endothelial dysfunction and CYP4502C expression in arterial tissues. High pressure liquid chromatography combined with enzyme-linked immunosorbent analysis revealed that the 20-HETE content was up-regulated significantly in the aorta of lipocalin-2 knockout mice, or wild type mice treated with sulphaphenazole, whereas the amount of 11, 12-diHETE decreased in the aortic tissues of these mice. Incubation with 20-HETE (10-7M) significantly attenuated the contractions induced by U46619 in rings of aortae and by acetylcholine in rings of carotid arteries. In summary, increased production of 20-HETE contributes to the improved endothelial function in lipocalin-2 deficient mice.